

CLAIMS

1. A system for producing guiding information for a user in a vehicle having means (310) for receiving information from a plurality of information sources
5 and means for presenting information through a plurality of media (350),
characterized by:
- means (323) for determining, for each received information data, a corresponding data category,
 - means (321) for determining at least partly in dependence of the
10 category of data a specification of at least one presentation
information object,
 - means (341) for determining at least one medium for presentation of
said at least one presentation information object,
 - means (342) for retrieving information associated with said at least
15 one presentation information object and in accordance with said
specification, and
 - means (340) for output of said at least one presentation information
object for presentation on said at least one presentation medium.
- 20 2. The system of claim 1, **characterized** by said means (340) for output
including means (343) for transcoding the retrieved information into a format
that matches said at least one medium for presentation.
- 25 3. The system of claim 1, **characterized** in that said data includes information
relating to at least one of a vehicle information object (110), a navigation
information object (120), a user information object (130) and a target
information object (140).

4. The system of claim 3, **characterized** in that the navigation information object (120) includes road section objects at least characterized by having at least one of length, service points, road tolls and points of interest.

5. The system of claim 3, **characterized** in that the target information object (140) includes a representation of another moving vehicle and said at least one presentation information object includes a representation of an instantaneous route to a meeting place at least fulfilling predetermined characteristics.

6. The system according to any of the previous claims, **characterized** by:

- means (341) for determining a system state, and
- means for enforcement of rules applied to the specification of at least one information object and the system state, the rules further being operative to change the system state.

7. The system of claim 6, **characterized** in that:

- the system state includes allocation of available media to presentation information objects,
- said change of system state involving a reallocation of at least one medium.

8. The system of claim 6, **characterized** in that said means for enforcement of rules generates a request for transcoding of said at least one presentation information object.

9. The system of claim 1, **characterized** by:

- means (323) for determining a priority level for said at least one presentation information object;

- means (322) for determining which medium that said at least one presentation information object is primarily intended for;
- means (341) for determining, if said determined medium is currently occupied by an ongoing presentation, whether said information should be overlaid on said medium, or said ongoing presentation should be interrupted for allowing presentation of said information or another one of said media should be used for presentation, in dependence on said priority level.

10 10. A method for producing guiding information for a user in a vehicle capable of receiving information from a plurality of information sources and presenting information through a plurality of media, **characterized** by the steps:

- determining, for each received information data, a corresponding data category,
- determining at least partly in dependence of the category of data a specification of at least one presentation information object,
- determining at least one medium for presentation of said at least one presentation information object,
- retrieving information associated with said at least one presentation information object and in accordance with the specification and said at least one medium for presentation, and
- presenting through said at least one medium the retrieved information.

25 11. The method of claim 10, **characterized** by the step of transcoding the retrieved information into a format that matches said at least one medium for presentation.

12. The method of claim 10, **characterized** in that said data comprises information relating to at least one of a vehicle information object (110), a navigation information object (120), a user information object (130) and a target information object (140).

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13. The method of claim 12, **characterized** in that the navigation information object (120) includes road section objects at least characterized by having at least one of length, service points, road tolls, and points of interest.

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14. The method of claim 12, **characterized** in that the target information object (140) includes a representation of another moving vehicle and said at least one presentation information object includes a representation of an instantaneous route to a meeting place at least fulfilling predetermined characteristics.

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15. The method according to claim 12, **characterized** in that target information in said target information object (140) is changeable in dependence of information in at least one of said vehicle information object (110), said navigation information object (120) and said user information object (130).

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16. The method according to any of the claims 10 – 15, further **characterized** by:

- determining a system state, and
- said step of determining a specification includes enforcement of rules applied to the input file and the system state, the rules further operative to change the system state.

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17. The method of claim 16, **characterized** in that:

- the system state includes allocation of available media to presentation information objects,
- said change of system state involves reallocation of medium.

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18. The method of claim 10, **characterized** by the further steps of:

- determining a priority level for said at least one presentation information object;
- determining which medium that said at least one presentation information object is primarily intended for;
- determining, if said determined medium is currently occupied by an ongoing presentation, whether said information should be overlaid on said medium, or said ongoing presentation should be interrupted for allowing presentation of said information or another one of said media should be used for presentation, in dependence on said priority level.

19. A method for producing guiding information for a user in a vehicle capable of receiving information from a plurality of information sources and presenting information through a plurality of media, **characterized** by the steps:

- determining a priority level for information from at least one of said information sources;
- selecting medium for presentation of said information at least partly in dependence on said priority level;
- presenting said information through said selected medium.

20. The method according to claim 19, further **characterized** by the steps:

- determining which medium that said at least one presentation information object is primarily intended for;
- determining, if said determined medium is currently occupied by an ongoing presentation, whether said information should be overlaid on said medium, or said ongoing presentation should be interrupted for allowing presentation of said information or another one of said

media should be used for presentation, in dependence on said priority level.

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original claims 1-20 replaced by amended claims 1-18 (4 pages)]

1. A system for producing guiding information for a user in a vehicle having
means (310) for receiving information from a plurality of information sources
5 and means for presenting information through a plurality of media (350),
characterized by:

- means (321) for processing information from a plurality of said
information sources to create a specification of a message
comprising at least one information object,

- 10 - means (341) for determining preferred medium for presentation of
said message in a first format, and for determining an alternative
medium for presentation of said message in a second format;

- means (342) for retrieving information associated with said at least
one information object, and

- 15 - means (340) for output of information associated with said at least
one information object for presentation on a selected one of said
preferred medium and said alternative medium.

2. The system of claim 1, **characterized** in that said means (340) for output
20 comprises means (343) for transcoding said message into said second format
for presentation on said alternative medium, wherein said second format is
different from the original first format specified in the message specification.

3. The system of claim 1, **characterized** in that said means (340) for output
25 comprises means (343) for replacing at least one information object by a
stored abstraction of the object from a symbol database (330).

4. The system of claim 1, **characterized** in that said information is related to at
least one of a vehicle information object (110), a navigation information object
30 (120), a user information object (130) and a target information object (140).

5. The system of claim 4, **characterized** in that the navigation information object (120) includes road section objects at least characterized by having at least one of length, service points, road tolls and points of interest.

6. The system of claim 4, **characterized** in that the target information object (140) includes a representation of another moving vehicle and said at least one presentation information object includes a representation of an instantaneous route to a meeting place at least fulfilling predetermined characteristics.

7. The system according to any of the previous claims, **characterized** by:

- means (341) for determining a system state, and
- means for enforcement of rules applied to the specification of at least one information object and the system state, the rules further being operative to change the system state.

8. The system of claim 7, **characterized** in that:

- the system state includes allocation of available media to information objects,
- said change of system state involving a reallocation of at least one medium.

9. The system of claim 7, **characterized** in that said means for enforcement of rules generates a request for transcoding of said at least one information object.

10. A method for producing guiding information for a user in a vehicle capable of receiving information from a plurality of information sources and presenting information through a plurality of media, **characterized** by the steps:

- processing information from a plurality of said information sources to create a specification of a message comprising at least one information object,
- determining preferred medium for presentation of said message in a first format and an alternative medium for presentation of said message in a second format;
- retrieving information associated with said at least one information object, and
- presenting information associated with said at least one information object on a selected one of said preferred medium and said alternative medium.

11. The method of claim 10, **characterized** by transcoding said message into said second format for presentation on said alternative medium, wherein said second format is different from the original first format specified in the message specification.

12. The method of claim 10, **characterized by** replacing at least one information object by a stored abstraction of the object from a symbol database (330).

13. The method of claim 10, **characterized** in that said information is related to at least one of a vehicle information object (110), a navigation information object (120), a user information object (130) and a target information object (140).

14. The method of claim 13, **characterized** in that the navigation information object (120) includes road section objects at least characterized by having at least one of length, service points, road tolls, and points of interest.

5 15. The method of claim 13, **characterized** in that the target information object (140) includes a representation of another moving vehicle and said at least one information object includes a representation of an instantaneous route to a meeting place at least fulfilling predetermined characteristics.

10 16. The method according to claim 13, **characterized** in that target information in said target information object (140) is changeable in dependence of information in at least one of said vehicle information object (110), said navigation information object (120) and said user information object (130).

15 17. The method according to any of the claims 10 – 16, further **characterized** by:
- determining a system state, and
- enforcement of rules applied to the specification of at least one information object and the system state, the rules further being operative to change the system state.

20 18. The method of claim 17, **characterized** in that:
- the system state includes allocation of available media to information objects,
- said change of system state involves reallocation of medium.
